

ELECTRONIC TUBE REFERENCE

PCF86

Voltage - Radio Detector Converter electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
PENTODE-TRIODE

Triode-pentode for VHF oscillator and frequency-converter service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9MP	BASE PINS	9
NOMINAL HEATER	8 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

9MP - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1	A	G3 – Suppressor Grid	CONNECTED
PIN1	–	K – Cathode	CONNECTED
PIN1	–	SH – Internal Shield	CONNECTED
PIN2	A	G1 – Control Grid	CONNECTED
PIN3	A	G3 – Suppressor Grid	CONNECTED
PIN3	–	K – Cathode	CONNECTED
PIN3	–	SH – Internal Shield	CONNECTED
PIN4	–	H – Heater	CONNECTED
PIN5	–	H – Heater	CONNECTED
PIN6	B	G1 – Control Grid	CONNECTED
PIN7	B	P – Plate (Anode)	CONNECTED
PIN8	A	P – Plate (Anode)	CONNECTED
PIN9	A	G2 – Screen Grid	CONNECTED

SECTION RATINGS

SECTION1 Triode	
TRANSCONDUCTANCE	0.0057 S
AMPLIFICATION FACTOR	17
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	1.5 W
MAXIMUM CATHODE CURRENT	15 mA
<i>Published ratings and characteristics promoted from the approved English source.</i>	

SECTION2 Pentode	
PLATE RESISTANCE	350000 Ω
TRANSCONDUCTANCE	0.012 S
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.5 W
MAXIMUM CATHODE CURRENT	18 mA
<i>Published ratings and characteristics promoted from the approved English source.</i>	

Triode-pentode for VHF oscillator and frequency-converter service.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1961 Ferranti Technical Handbook

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1961 FERRANTI TECHNICAL HANDBOOK

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	8 V	—
Heater Current	300 mA	—
Maximum Intended Frequency	220 MHz	FrequencyChanger



SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V1

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1963 PHILIPS ELECTRON TUBES HANDBOOK V1

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	Oscillator
Control-grid voltage	-3 V	Oscillator
Plate current	14 mA	Oscillator

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5500 μ S	Section1
Amplification factor	17	Section1

Section 2 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	Mixer
Screen voltage	150 V	Mixer
Control-grid voltage	-1.2 V	Mixer
Plate current	10 mA	Mixer
Screen current	3.3 mA	Mixer

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	12000 μS	Section2
Plate resistance	350000 Ω	Minimum
Amplification factor	70	Section2



SOURCE DATA APPENDIX

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1967 Mullard Receiving and Amplifying Valves

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1967 MULLARD RECEIVING AND AMPLIFYING VALVES

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ClassA
Grid No.1 voltage	-3 V	ClassA
Plate current	14 mA	ClassA

1967 MULLARD RECEIVING AND AMPLIFYING VALVES

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	ClassA
Screen-grid voltage	160 V	ClassA
Grid No.1 voltage	-1.2 V	ClassA
Plate current	10 mA	ClassA
Screen-grid current	3.3 mA	ClassA



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1968 Mazda Belvu

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1968 MAZDA BELVU
Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	8 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Plate Voltage	250 V	—
Maximum Plate Dissipation	1.5 W	—
Maximum Cathode Current	20 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6000 μS	Typical
Amplification Factor	55	Typical
Plate Resistance	18000 ohm	Typical

1968 MAZDA BELVU

Section 2 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	8 V	Nominal
HeaterCurrentNominal	300 mA	Nominal
Maximum Plate Voltage	250 V	—
Maximum Screen Voltage	250 V	—
Maximum Plate Dissipation	2.5 W	—
Maximum Screen Dissipation	0.5 W	—
Maximum Cathode Current	25 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6000 μ S	Typical
Plate Resistance	300000 ohm	Typical



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1972 Philips Receiving Tubes

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1972 PHILIPS RECEIVING TUBES

Section 1 · Triode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	VHF0scillator text	—

1972 PHILIPS RECEIVING TUBES

Section 2 · Pentode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	VHFMixer text	—

SOURCE OPERATING CONDITIONS

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1973 Mazda Valves Binder 2

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1973 MAZDA VALVES BINDER 2

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
sion conductance and input impedance at	200 Mc/s	—
50 V r.m.s. For intercarrier receivers Vh-k should not exceed	75 V	—
Input Pentode ain(p)	58 pF	—
Output Pentode cout(p)	3.5 pF	—
Grid 1 to Anode Pentode ag1-ap	0.012 pF	—
Grid 1 to Grid 2 cg1.g2	17 pF	—
Grid Triode to Anode Triode cgo-at	20 pF	—
Anode Pentode to Anode Triode cap-at	125 pF	—
Anode Pentode to Grid Triode cap-gt	0.014 pF	—
Grid 1 to Anode Triode cgrat <	1 pF	—
Grid 1 to Grid Triode c51-gt <	1 pF	—
Anode Voltage Va 170	100 V	—
Control Grid Voltage Vg1 -1 2 -3	0 V	—
/ '1 Anode Current Ia 10	14 mA	—
Mutual Conductance gm 12	57 mA	—
Anode Voltage Va	190 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heterodyne Voltage (R.M.S.) Vhet(r.m.s.)	23 V	—
Anode Current Ia	85 mA	—
Screen Grid Current IS2	2.7 mA	—
Conversion Conductance gc	45 mA	—
Vb =	190 V	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current Ih	300 mA	—
Heater Voltage Vh	80 V	—
Maximum Anode Dissipation pa(max) 20	15 W	—
Maximum Anode Voltage Va(max) 250	125 V	—
Maximum Cathode Current Ik(max) 18	15 mA	—
Grid Triode to Cathode and Heater cgt-k,h	24 pF	—
Anode Triode to Cathode and Heater cat-k,h	1.1 pF	—
Screen Supply Voltage (RS2 = 18kf2) VS2(b)	190 V	—


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1975 RCA RC30

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1975 RCA RC30

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ClassA
Grid No.1 voltage	-3 V	ClassA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate current	14 mA	ClassA

1975 RCA RC30

Section 2 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	ClassA
Screen-grid voltage	160 V	ClassA
Grid No.1 voltage	-1.2 V	ClassA
Plate current	10 mA	ClassA
Screen-grid current	3.3 mA	ClassA



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1999 Philips E-Z

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1999 PHILIPS E-Z

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode current I _a	14 mA	—
Transconductance S	5.7 mA/V	—
Anode current I	14 mA	—
Effective transconductance S _{eff}	3.5 mA/V	—
A — V _g ,	0 V	—
10 o	12 V	—
FE _{ra}	-1.5 V	—
1 V _g	-12 V	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to all except anode Cg(a)	2.4 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode current Iy	12 mA	—
Anode voltage Va, max	530 V	—
Va max	250 V	—
Anode dissipation Wy max	1.5 W	—
Cathode current Ik max	15 mA	—
Grid resistor Rg max	0.5 MΩ	—

1999 PHILIPS E-Z

Section 2 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode current Ia	10 mA	—
Transconductance S	12 mA/V	—
Heater current If	300 mA	—
Grid No.1 to all except anode Cgl(a)	5.8 pF	—
Anode to grid No.1 Ca_gl	0.012 pF	—
Grid No.1 to grid No.2 Cglgz	1.7 pF	—
Anode triode to anode pentode CaTaP	0.125 pF	—
Grid triode to anode pentode CgTaP	0.014 pF	—
Anode triode to grid No.1 pentode CaTglP max	0.01 pF	—
Grid triode to grid No. 1 pentode CnglP max	0.01 pF	—
Anode supply voltage Vba	190 V	—
Anode current Ia	8.5 mA	—
Grid No.2 current Ig2	3 mA	—
Grid No.1 current Ig1	30 μA	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion conductance S	4.5 mA/V	—
Anode voltage Va, max	550 V	—
Va max	250 V	—
Grid No. 2 voltage VgZQ max	550 V	—
Vg2 max	150 V	—
Anode dissipation Wa max	2 W	—
Grid No.2 dissipation Wg2 max	0.5 W	—
Cathode current Iy max	18 mA	—
Grid No.1 resistor Rgl max	0.5 MΩ	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode to all except grid No. 1 Ca(gl)	3.5 pF	—

TUBE TINKER

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